

# Code Connections



What are our current  
Challenges?

APRIL  
2019

# Agenda

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Welcome to the first “official” Code Connections meeting!

- Introductions & housekeeping
- Patrick Granson, Director of Code Enforcement
- Change in monthly meetings
  - Format and purpose of Code Academy and Code Connections
    - Calendar
  - Code Updates (on web)
- Group Discussion – *Where are our current challenges?*





# Patrick Granson

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Director of Code Enforcement



# Code Academy

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MCCE's Code Administrators were asked to revisit our monthly consistency meetings to evaluate their effectiveness & reconsider our delivery method

## Consistency Meeting

- Top-down communication path
- Decisions limited to a few select individuals
- Patching holes in the boat as they occur
- Time-consuming conversion of PPT to typed minutes
  - Minutes were "hidden" on the website
  - Not well organized

## Code Academy

- Learning environment increases comprehension
- Informed decisions made inclusively
- Routine maintenance to prevent the holes
- Posting of presentations in both PPT & PDF formats
  - PPT allows replaying
  - PDF allows researching



# Code Connections

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Specific meetings set aside to connect with designers, developers & builders

- Meetings held twice a year (at minimum) allow us to get feedback from the industry and to gauge effectiveness
- Also allows us the opportunity to share recent challenges, go over code changes and raise awareness of pending legislation

# Meeting Calendar

## Helpful Links

<https://www.mecknc.gov/LUESA/CodeEnforcement/Tools/CodeInterpretations/Documents/CODE%20ACADEMY%20CALENDAR%202019.pdf>



## MECKLENBURG COUNTY CODE ENFORCEMENT TRAINING OPPORTUNITIES

# 2019

### JANUARY

m	t	w	t	f	s	s
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
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28	29	30	31			

### FEBRUARY

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### MARCH

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### APRIL

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29	30					

### MAY

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31						

### JUNE

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### JULY

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### AUGUST

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24	25	26	27	28	29	30
31						

### SEPTEMBER

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23	24	25	26	27	28	29
30						

### OCTOBER

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23	24	25	26	27	28	29
30	31					

### NOVEMBER

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16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

### DECEMBER

m	t	w	t	f	s	s
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16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

rev. 2/2019

Approximate total training hours provided: 170 hours

## CODE ACADEMY

### Key

- COURSE WITH ISO CREDIT
- △ COURSE WITH Q-BOARD - CE CREDIT
- ◇ COURSE WITH CONTRACTOR CE CREDIT
- ★ HOME BUILDER'S CODE-CONNECTION MEETING
- ★ COMMERCIAL CODE-CONNECTION MEETING

RESIDENTIAL BLDG.  
COMMERCIAL BLDG.  
MECHANICAL  
PLUMBING  
ELECTRICAL

## LUESA

4<sup>th</sup> Floor  
Pine-Fraser-Fir  
Conference Rms.

2145 Suttle Ave.  
Charlotte, NC 28208



# Code Central – the place for news, updates and recent interpretations



# Group Discussion

What are our greatest challenges?





# THANK YOU!

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Jeff  
Vernon

Building Code Administrator

Email

[Jeff.vernon@mecknc.gov](mailto:Jeff.vernon@mecknc.gov)

Oct 1, 2019

# CODE CONNECTIONS

*Mecklenburg County  
Code Enforcement*





# AGENDA

*Code Connections is intended to be an information session as well as an opportunity for discussion on code issues or concerns*

- Updated Website
- Code Consultants at NCDOI
- Bills / Session Law
- Current Code Issues
- Product Fair
- Open Discussion





An abstract, textured background featuring a mix of vibrant colors including red, orange, yellow, green, blue, and purple. The texture resembles cracked paint or marbled paper. A dark, semi-transparent rectangular overlay covers the bottom half of the image, providing a background for the text.

# UPDATED WEBSITE

*Updated as of  
July 1, 2019*



# OUR WEBSITE

- New opening page
- New look & new layout for all the different sections
  - Permitting
  - Plan Review
  - Inspections
  - County Fire Marshal
  - Revenue Collections
  - Customer Tools & Forms
  - Code Information and Appeals
  - Contact Us



# MECKLENBURG COUNTY CODE ENFORCEMENT


Mecklenburg County Code Enforc


+


← → ↺


https://www.mecknc.gov/LUESA/CodeEnforcement/Pages/default.aspx


MECKNC.GOV

 GOVERNMENT

 RESIDENTS

 BUSINESSES

 VISITORS



Mecklenburg County, NC > LUESA > Code Enforcement

About Us

Building Development Commission

Permitting

Plan Review

Inspections

Public Records

County Fire Marshal


Revenue Collections


Customer Tools & Forms


Code Information & Appeals


Contact Us


Mecklenburg County Code Enforcement


 Print


 Share

 ARCHITECTS & ENGINEERS

 CONTRACTORS

 HOMEOWNERS

 OWNERS & DEVELOPERS

 CUSTOMER LOGIN

An abstract, colorful artwork featuring swirling patterns of purple, blue, green, and orange, resembling a marbled or ink-blended effect. It is positioned on the right side of the page, partially overlapping the main content area.



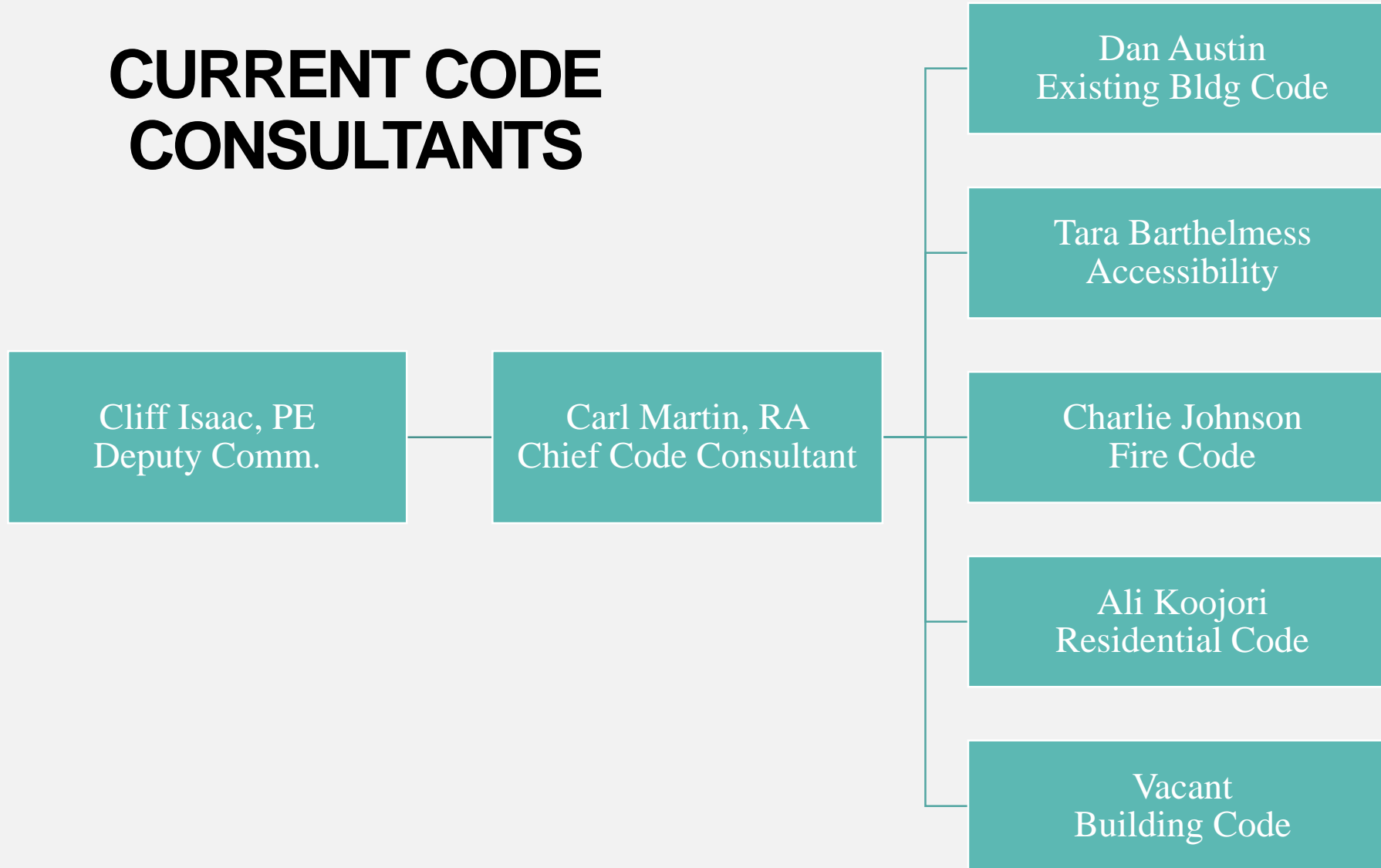
The background is a vibrant, abstract composition of various colors including red, orange, yellow, green, blue, and purple, with a cracked, marbled texture. A white rectangular box is positioned in the lower right area, containing the text 'Engineering & Codes'.

# NCDOT STAFF

*Engineering & Codes*

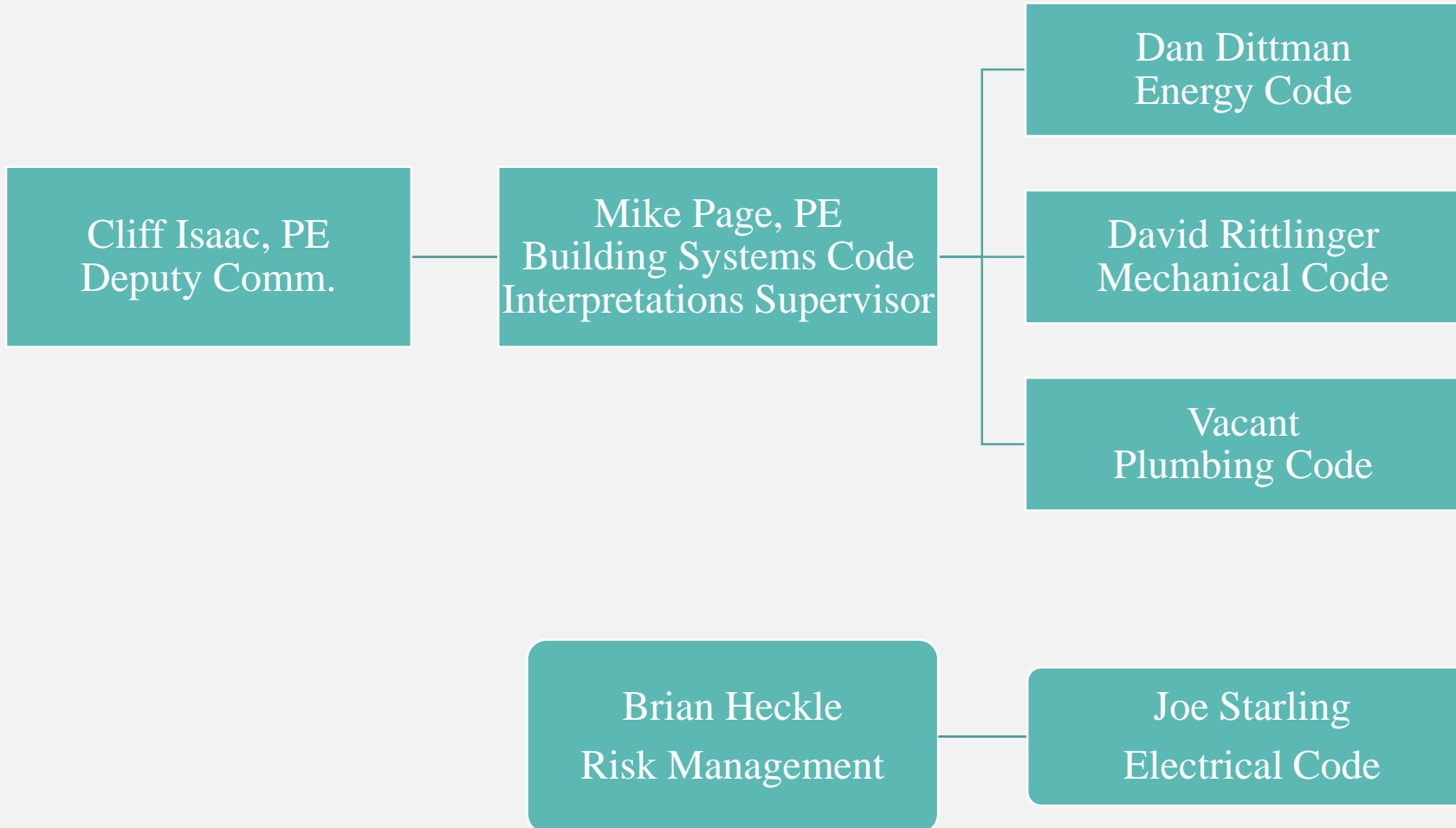


# CURRENT CODE CONSULTANTS





# CURRENT CODE CONSULTANTS



# FOR MORE INFORMATION:

<http://www.ncdoi.com/OSFM/>

## Navigating the NCDOI Website

- Engineering & Codes
- Staff Directory
- Newsletters
- Marketplace
- Email Updates
- Code Resources
- Building Code Council
- State Building Codes
- Interpretations

NORTH CAROLINA  
DEPARTMENT OF INSURANCE  
**OSFM**  
OFFICE OF STATE FIRE MARSHAL  
MIKE CAUSEY  
STATE FIRE MARSHAL

SEARCH

HOME ABOUT US OSFM DIVISIONS DEPARTMENT OF INSURANCE CONTACT US EMPLOYMENT OSFM 24

**NOTICE**

We have moved to the Albemarle Building on 325 N. Salisbury Street, Raleigh, NC. Our mailing address will still be 1202 Mail Service Center, Raleigh, NC 27699-1202. Please call our main number for assistance – 919-647-0000.

**ALERT**

**Kidde Recalls Fire Extinguishers**

The U.S. Consumer Product Safety Commission has issued a recall for nearly 40 million fire extinguishers made by the Kidde Corporation based in Mebane, N.C. because they may not work in an emergency.

Insurance Commissioner Mike Causey encourages consumers to immediately contact Kidde toll free at 855-271-0773 or online at [www.kidde.com](http://www.kidde.com) to request a free replacement fire extinguisher and for instructions on how to return the recalled unit.

**i Information and Assistance**

FIRE AND RESCUE PERSONNEL

SAFE KIDS NORTH CAROLINA / INJURY PREVENTION PROGRAMS

**ENGINEERING AND CODES**

MANUFACTURED (HUD) HOMES AND MODULAR BUILDINGS

PYROTECHNIC OPERATOR CERTIFICATION

FIRE SAFETY PROGRAMS

State Fire Marshal **Mike Causey**

**OSFM 24** Online Services Portal

RESOURCES



The background is an abstract, textured composition of various colors including red, yellow, green, blue, and purple, resembling a marbled or painted surface. A dark, semi-transparent overlay covers the entire image, creating a moody atmosphere.

# LEGISLATION

*2019-2020 General  
Assembly Session*



# BILLS & SESSION LAW

2019-2020 General Session

[ncleg.net](http://ncleg.net)

- **HB162** (2/25/19) – 8 hrs CE for GC's required annually
- **SB355** (3/26/19) – Vested rights. Gives permit applicant the right to use the code / ordinances in effect at the time of the initial permit.
- **HB675** (4/9/2019) – Mandates form for RDP inspections; Exempts TV & Film sets; 15 day limit on res plan reviews
- **HB448** (3/25/19) – City (160A) & County (153A) combined into GS 160D
- **SB566** (4/2/19) – Consumer Fireworks.
- **SB638** (4/3/19) - Gives DOI FP inspections of State-owned buildings.
- **HB730** (4/11/19) – Valet trash Service in apts.; 30 occupants toilet room, df, mop sink.
- **SB553** (4/2/19) – Valet trash; Temp Events; Seal \$ amts



An abstract, textured background featuring a variety of colors including red, yellow, green, blue, and purple. The texture resembles cracked paint or marbled paper. A faint, light-colored skull-like shape is visible in the center of the image.

# CODE ISSUES

*Current Challenges*



## *Current Code Challenges*

- *Noncompliant Existing Buildings*
- *Alternates / EJ's*
- *Podium Buildings*
- *UL Assemblies*
- *Penetrations*





# NON-COMPLIANT BUILDINGS

*Existing Buildings undergoing moderate renovations that uncovered code violations*

- A four story office building that was constructed under the 1978 code has a full height atrium that is not separated from the rest of the building. The corridor was rated at one time so it acted like a barrier between the atrium and the tenant spaces but when sprinklers were installed in the building, the corridor rating was ignored and new penetrations were not protected. Now there is no separation from the atrium, no smoke control system and no rated doors on tenant spaces.
- A four story office building that was constructed around 1986 and has had multiple tenant renovations over the years, was found to be listed as the wrong construction type when building steel was exposed during a recent project. The building had been presented as a Type IIA building but none of the structural steel in the building is protected. This makes it a Type IIB at best, but without sprinklers, it is over the height limitation of 3 stories for Type IIB.
- A four story Business occupancy that is not sprinklered and has not maintained the ratings on the corridors. So many penetrations have been made through the fire partition walls without protection and so many penetrants are stuffed into large holes that it would be nearly impossible to get them all firestopped properly. In addition, many floor penetrations have been made without protection and the floors have been found to be too thin to achieve the 1-hr rating needed for Type IIA.

*Alternate Method Material*

*Smoke & Egress Study*

*Chapter 14 Evaluation*



# INSPECTOR'S DUTY TO NOTIFY OWNER OF DEFECTS

## § 153A-365. Defects in buildings to be corrected.

If a local inspector finds any defect in a building, or finds that the building has not been constructed in accordance with the applicable State and local laws and local ordinances and regulations, or finds that a building because of its condition is dangerous or contains fire-hazardous conditions, he shall notify the owner or occupant of the building of its defects, hazardous conditions, or failure to comply with law. The owner and the occupant shall each immediately remedy the defects, hazardous conditions, or violations of law in the property each owns. (1969, c. 1066, s. 1; 1973, c. 822, s. 1.)

## NOTICE OF VIOLATION

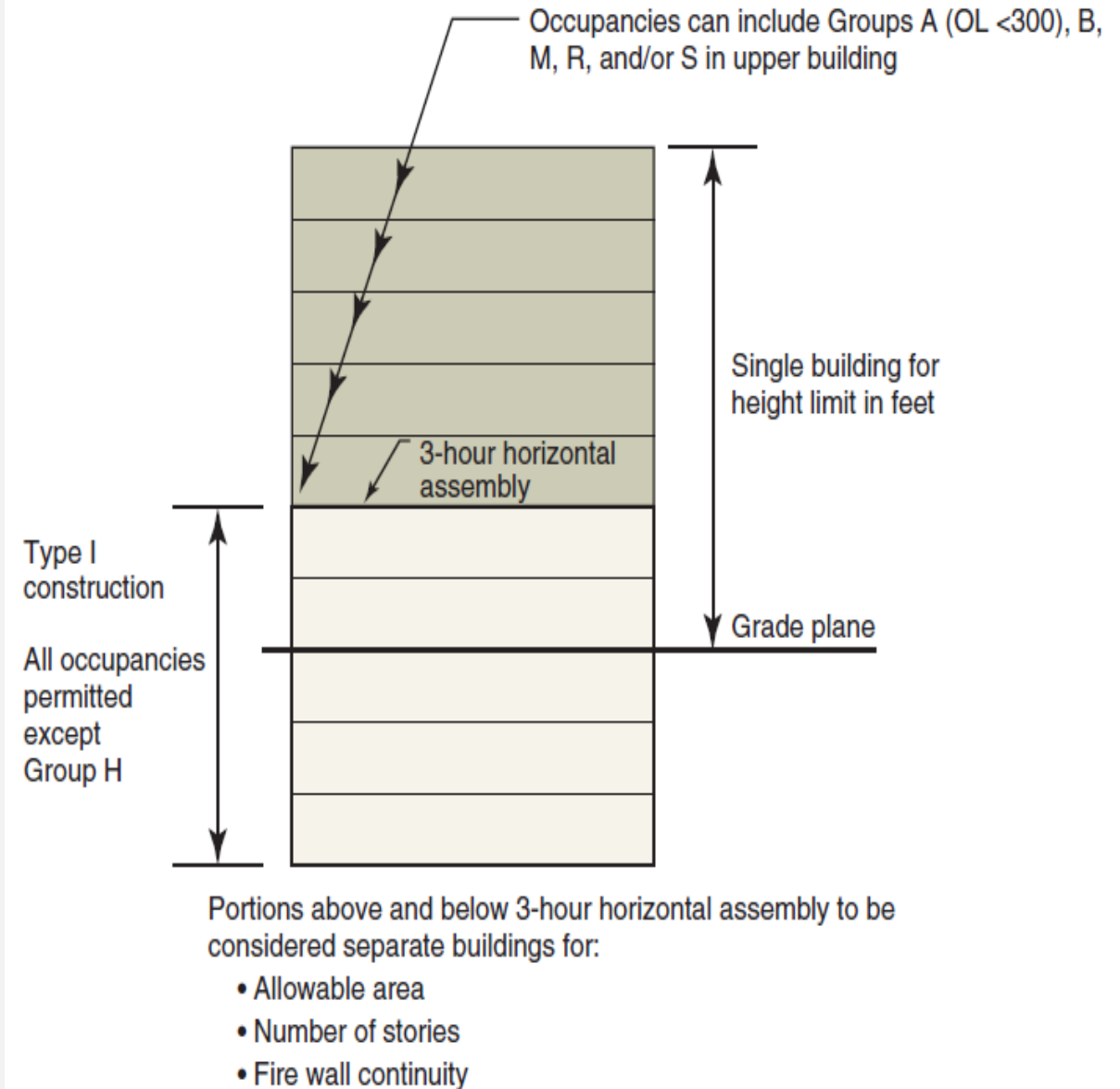


# 510.2 HORIZONTAL BUILDING SEPARATION

*In the special provisions of Section 510.2 addressing pedestal buildings, there is no longer a limit of one story above grade plane for that portion of the structure that occurs below the 3-hour horizontal separation.*

*Upper 'building' height in feet continues to be based on height above grade plane.*

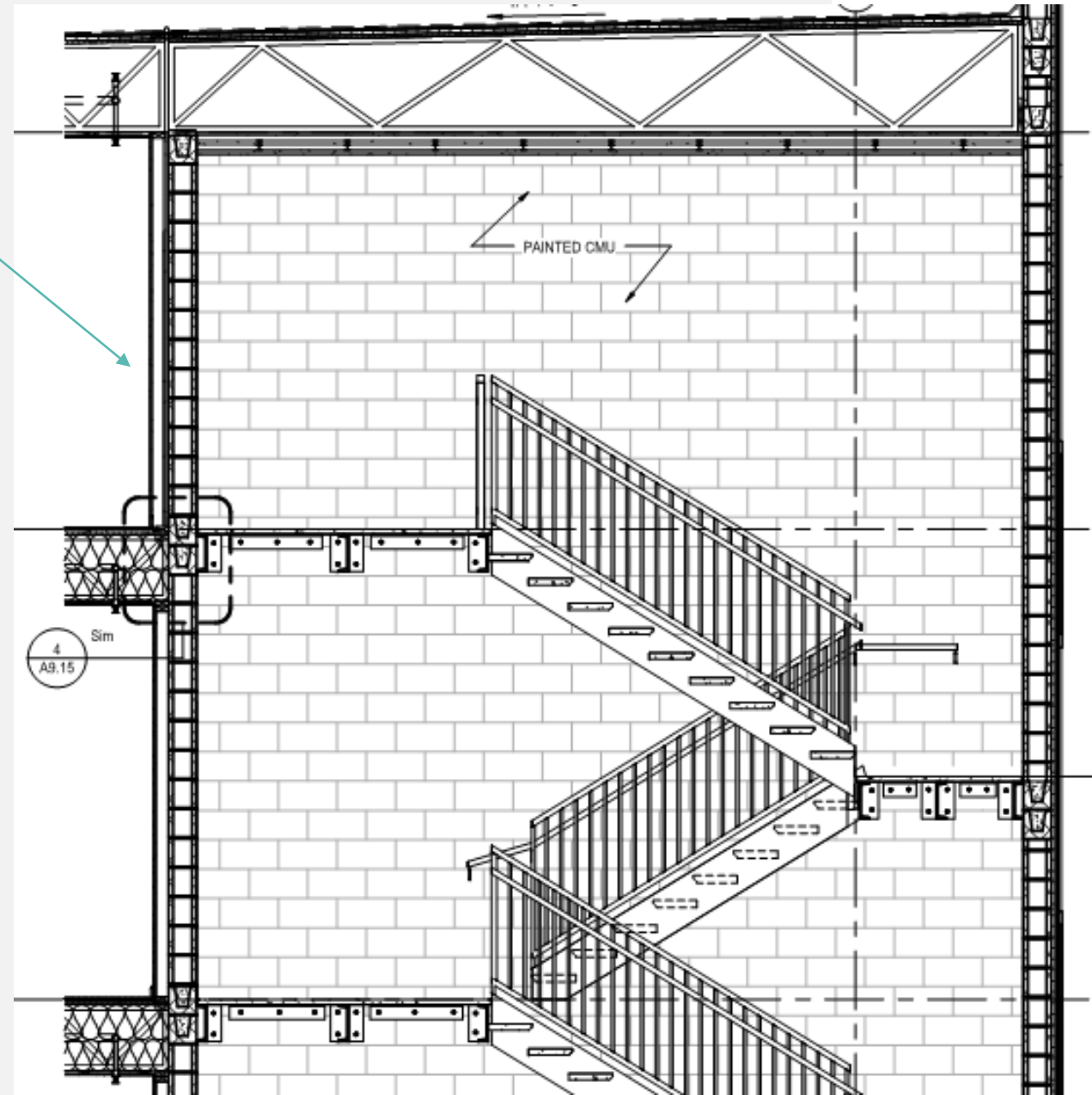
*Occupancies permitted below horizontal separation expanded to include all occupancy classifications except Group H.*



## Shaft Enclosure

**1023.5 Penetrations.** Penetrations into or through *interior exit stairways* and *ramps* are prohibited except for equipment and ductwork necessary for independent ventilation or pressurization, sprinkler piping, standpipes, electrical raceway for fire department communication systems and electrical raceway serving the *interior exit stairway* and *ramp* and terminating at a steel box not exceeding 16 square inches (0.010 m<sup>2</sup>). Such penetrations shall be protected in accordance with Section 714. There shall not be penetrations or communication openings, whether protected or not, between adjacent *interior exit stairways* and *ramps*.

**Exception:** Membrane penetrations shall be permitted on the outside of the *interior exit stairway* and *ramp*. Such penetrations shall be protected in accordance with Section 714.3.2.





*Sections 706 – 710 of the 2018 NCBC*

# THE FIVE WALLS

# FIVE DIFFERENT TYPES OF FIRE RATED/ SMOKE WALLS

Fire Walls

2018 NCBC Section **706**

Fire Barriers

2018 NCBC Section **707**

Fire Partitions

2018 NCBC Section **708**

Smoke Barriers

2018 NCBC Section **709**

Smoke Partitions

2018 NCBC Section **710**



# FIRE WALL

(NCBC 706)

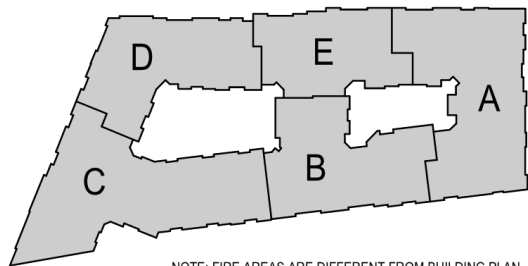
**706.1 General.** Each portion of a building separated by one or more *fire walls* that comply with the provisions of this section shall be considered a separate building. The extent and location of such *fire walls* shall provide a complete separation. Where a *fire wall* separates occupancies that are required to be separated by a *fire barrier* wall, the most restrictive requirements of each separation shall apply.

**706.1.1 Party walls.** Any wall located on a *lot line* between adjacent buildings, which is used or adapted for joint service between the two buildings, shall be constructed as a *fire wall* in accordance with Section 706. Party walls shall be constructed without openings and shall create separate buildings.

- Separates Buildings
- Continuous from foundation to roof
- Structurally independent
- Rated from 2 – 4 hours
- Openings – 156 sf max up to 25% of wall if non-sprinklered (no openings allowed in party walls)

# QUARTERS AT MOREHEAD

This project will serve as our example to illustrate the different types and applications of the five walls



NOTE: FIRE AREAS ARE DIFFERENT FROM BUILDING PLAN MATCHLINES USED TO ENLARGE BUILDING PLANS ON SHEETS

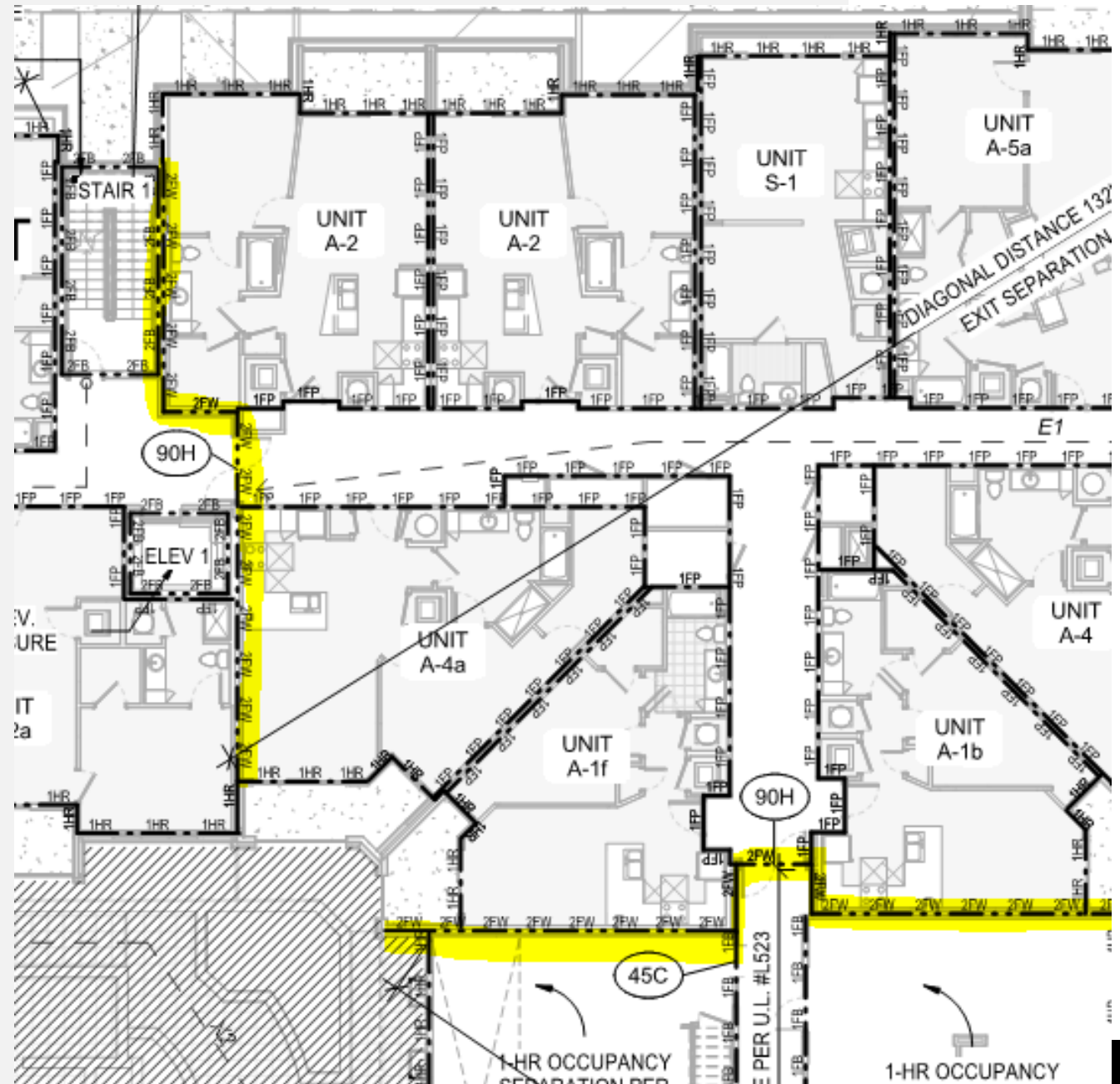
FIRE AREAS





## EXAMPLE OF 2 HOUR FIRE WALLS

Separates one building into two (or more) buildings which allows for larger structures as well as a change of construction type.







# UL ASSEMBLY U347

## Design No. U347

May 08, 2018

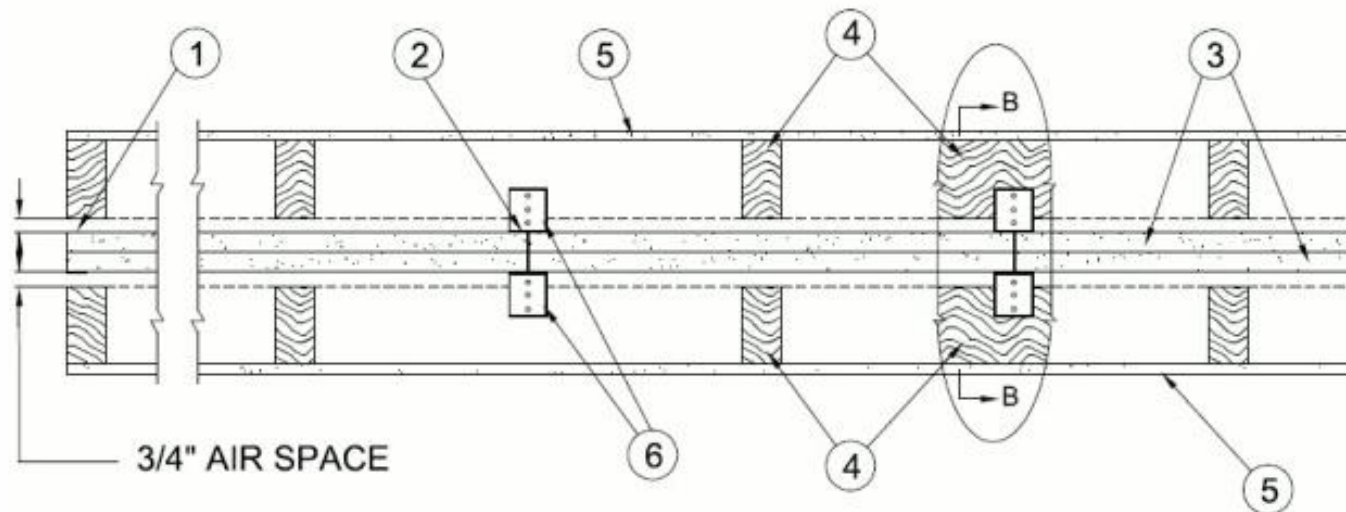
**Nonbearing Wall Rating — 2 Hr (See Items 4, 4A and 4B) (Separation Wall, See Items 1,2 and 3)**

**Bearing Wall Rating 2 Hr. (Protected Wall, See Items 4 and 4A)**

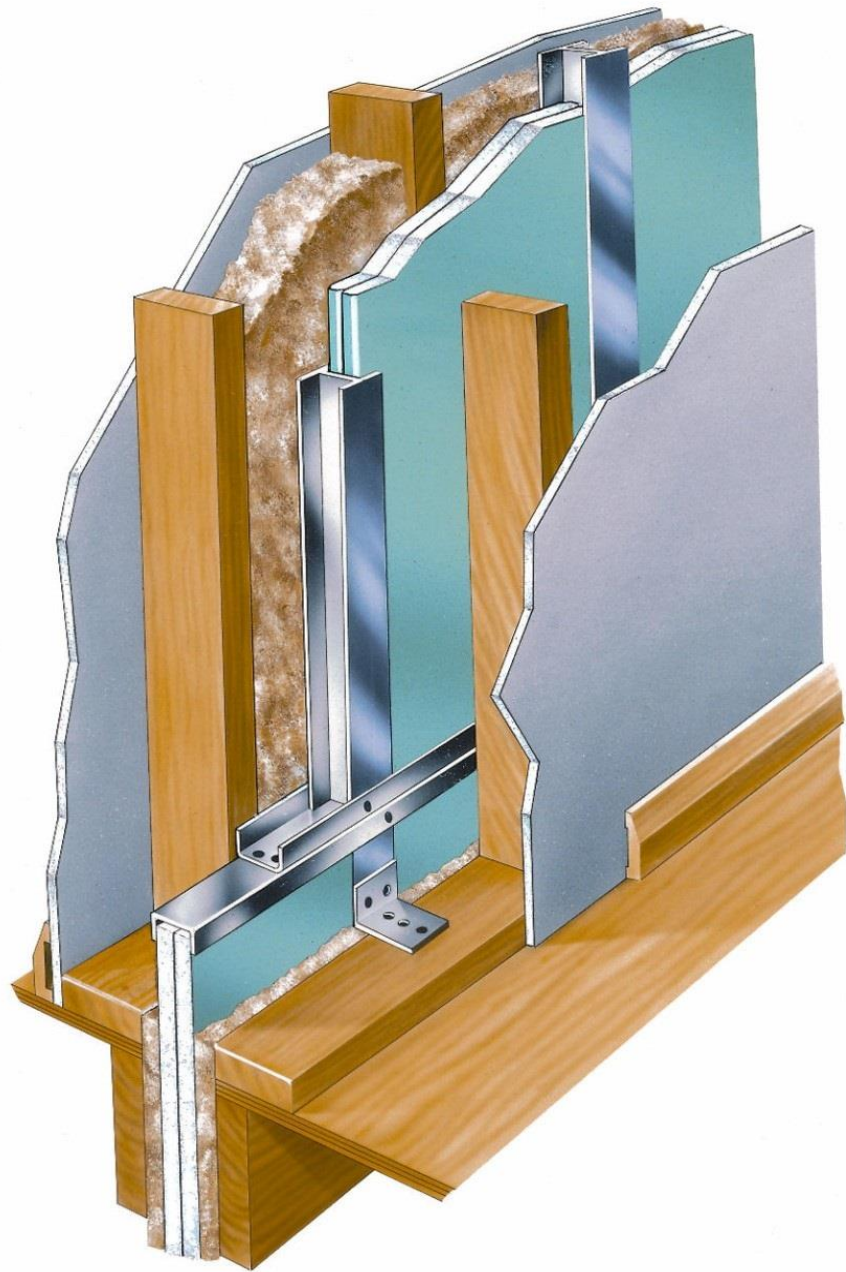
**Nonbearing Wall Rating 2-Hr (Protected Wall, See Item 4, 4A and 4B)**

**Finish Rating — 120 Min (See Item 4)**

**STC Ratings — 61, 69, 70 (See Items 7 - 7B)**



**CONFIGURATION B**  
EXPOSED TO FIRE FROM EITHER SIDE



Artist's Rendering



Actual Installation



## SHAFTLINER FIRE WALL SYSTEM

This is a different project and shows a different but similar UL design installation. Note the continuity of the shaftliner panels through the floor system, the platform framing of the walls and the bracing on the liner panels which is needed because the outermost wall has not been built yet.







# TERMINATION OF FIRE WALLS

**706.6 Vertical continuity.** *Fire walls* shall extend from the foundation to a termination point not less than 30 inches (762 mm) above both adjacent roofs.

## **Exceptions:**

1. Stepped buildings in accordance with Section 706.6.1.
2. Two-hour fire-resistance-rated walls shall be permitted to terminate at the underside of the roof sheathing, deck or slab, provided:
  - 2.1. The lower roof assembly within 4 feet (1220 mm) of the wall has not less than a 1-hour *fire-resistance rating* and the entire length and span of supporting elements for the rated roof assembly has a *fire-resistance rating* of not less than 1 hour.
  - 2.2. Openings in the roof shall not be located within 4 feet (1220 mm) of the *fire wall*.
  - 2.3. Each building shall be provided with not less than a Class B roof covering.



# TERMINATION OF A FIRE WALL

Parapet Condition





# WHY IT'S IMPORTANT TO GET CONTINUITY





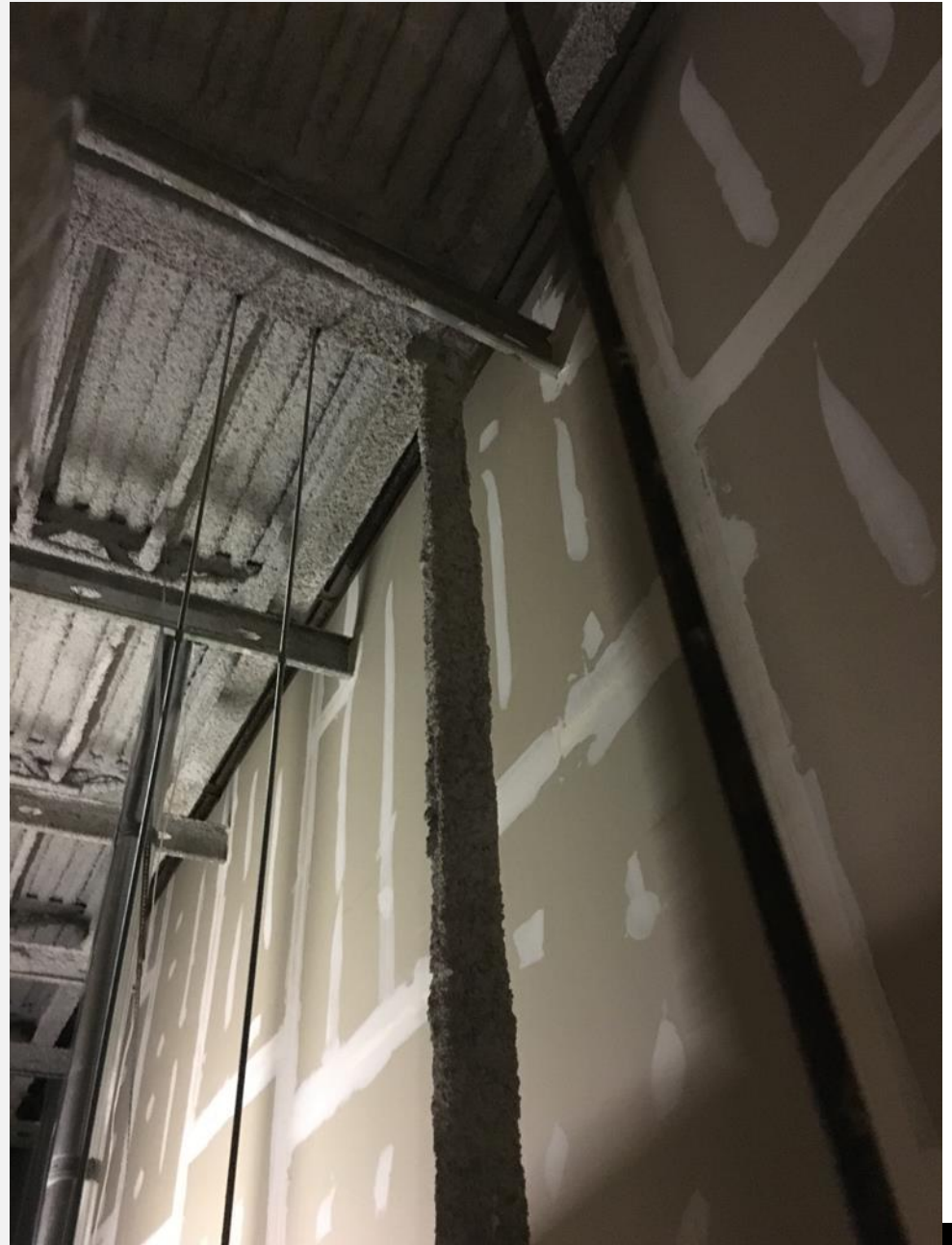
# FIRE BARRIERS (NCBC 707)

- Shaft Enclosures
- Exit Enclosures
- Exit Passageways
- Horizontal Exits
- Atria
- Control Areas
- Fire Areas
- Incidental Accessory Occupancies
- Separated Occupancies
- Separate Fire Areas / Occupancies
- Form Egress Components
- Continuous from foundation to roof
- Rated from 1 – 4 hours

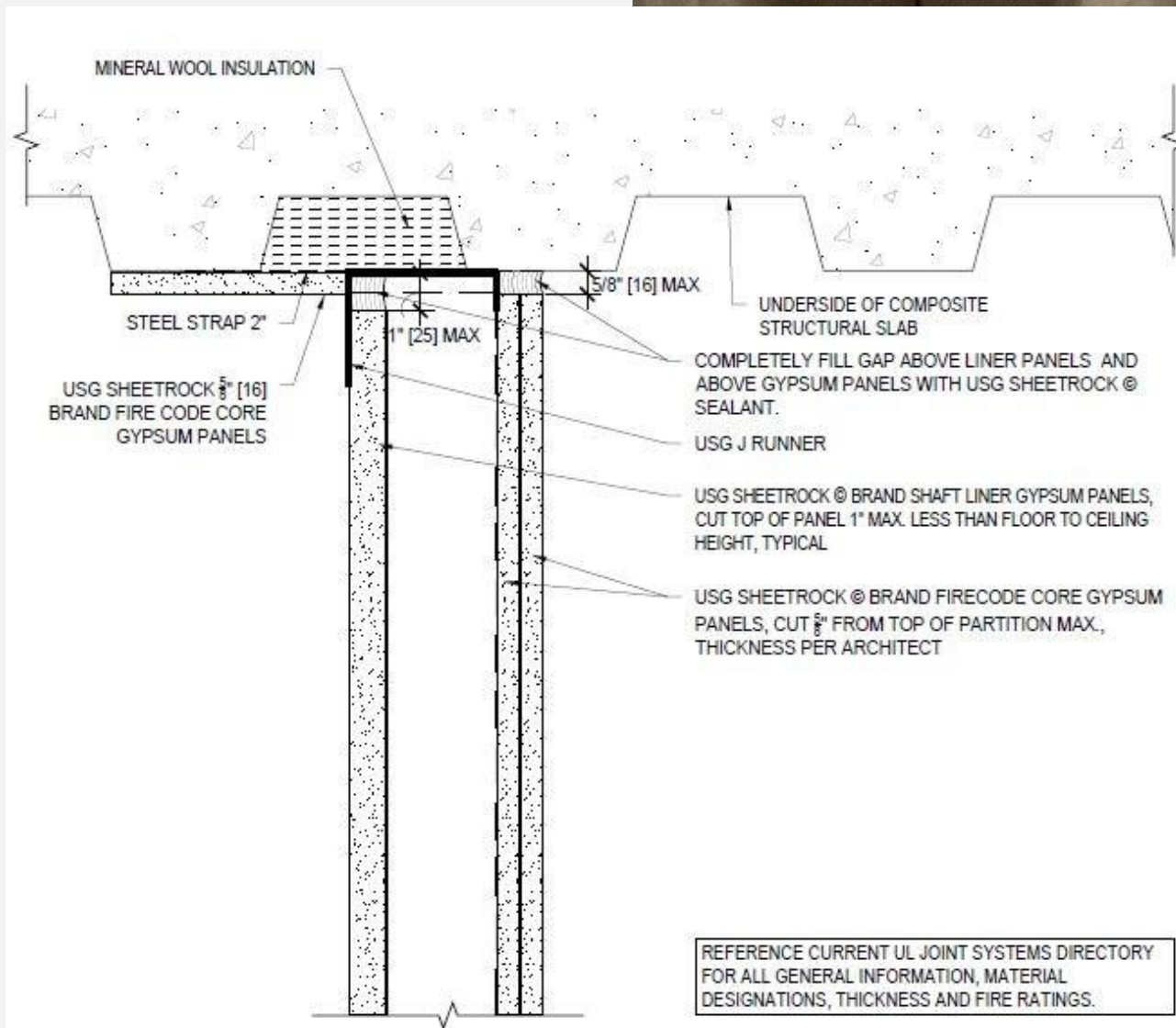
**707.5 Continuity.** *Fire barriers* shall extend from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, slab or deck above and shall be securely attached thereto. Such *fire barriers* shall be continuous through concealed space, such as the space above a suspended ceiling. Joints and voids at intersections shall comply with Sections 707.8 and 707.9

**Exceptions:**

1. Shaft enclosures shall be permitted to terminate at a top enclosure complying with Section 713.12.
2. *Interior exit stairway* and *ramp* enclosures required by Section 1023 and *exit access stairway* and *ramp* enclosures required by Section 1019 shall be permitted to terminate at a top enclosure complying with Section 713.12.







9

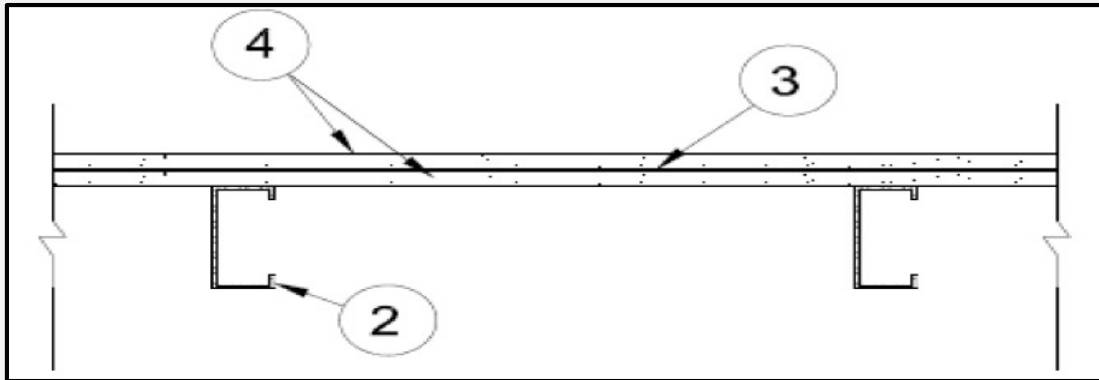
2 HR Head OF WALL UL HW-D-0613

Scale: 3" = 1' - 0"



# ONE-SIDED UL DESIGNS ARE RARE BUT DO EXIST

There is a corridor on the other side of this wall. The steel is protected based on the Type of Construction of the building, but the corridor is rated by a UL Assembly so the duct penetration either needs a damper or the ceiling of the corridor must be rated the same as the corridor walls. UL Assembly V497

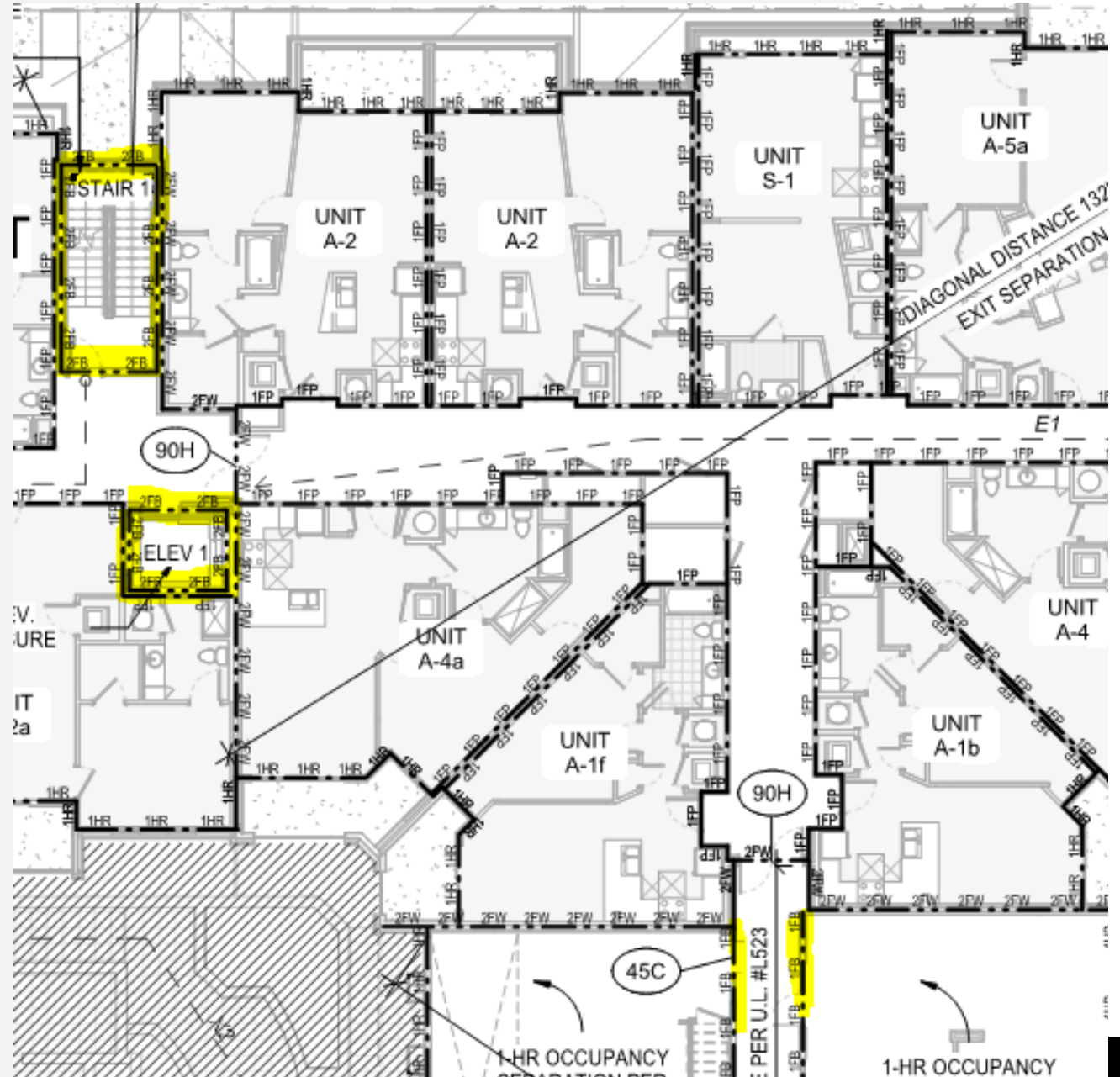


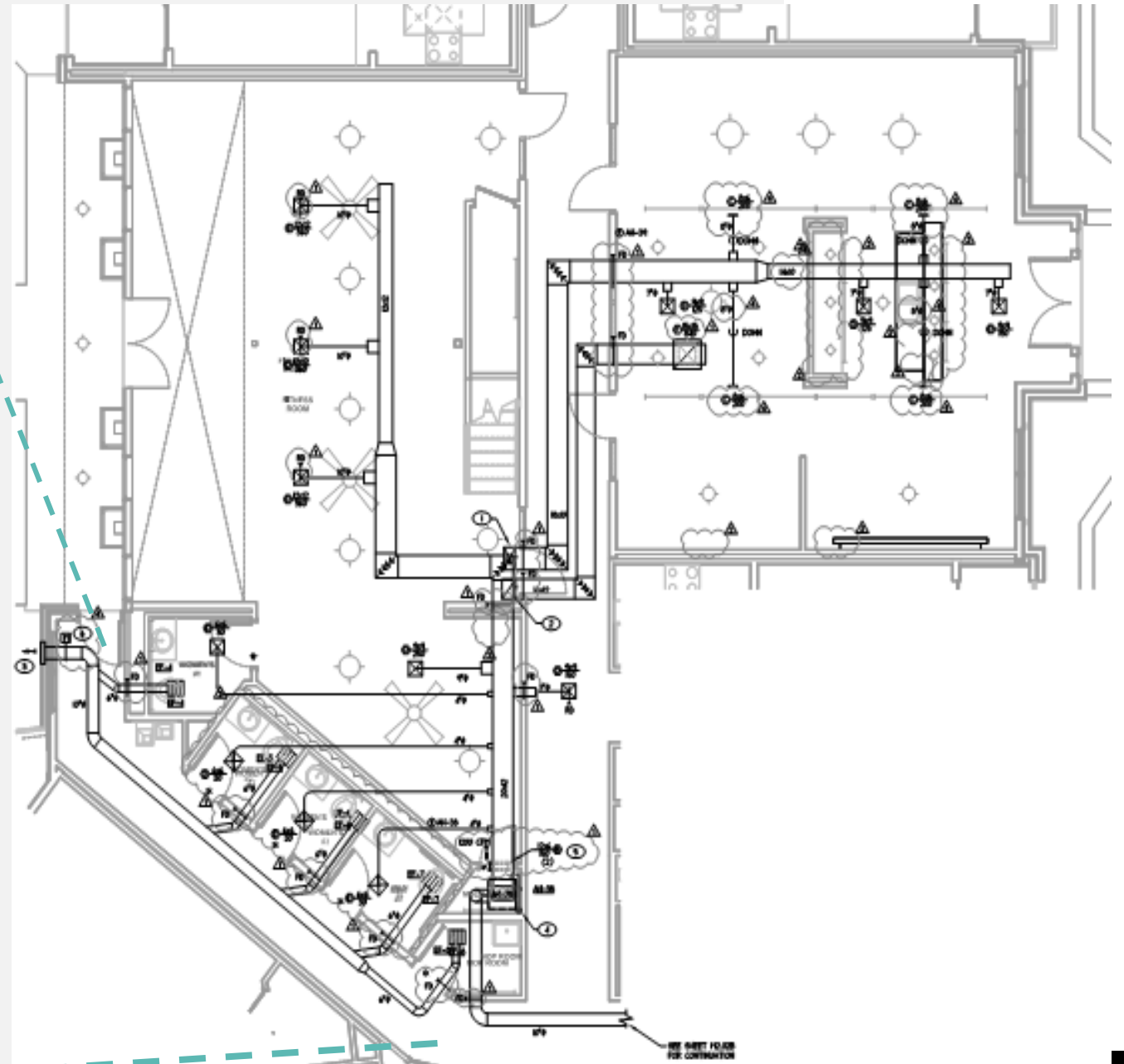
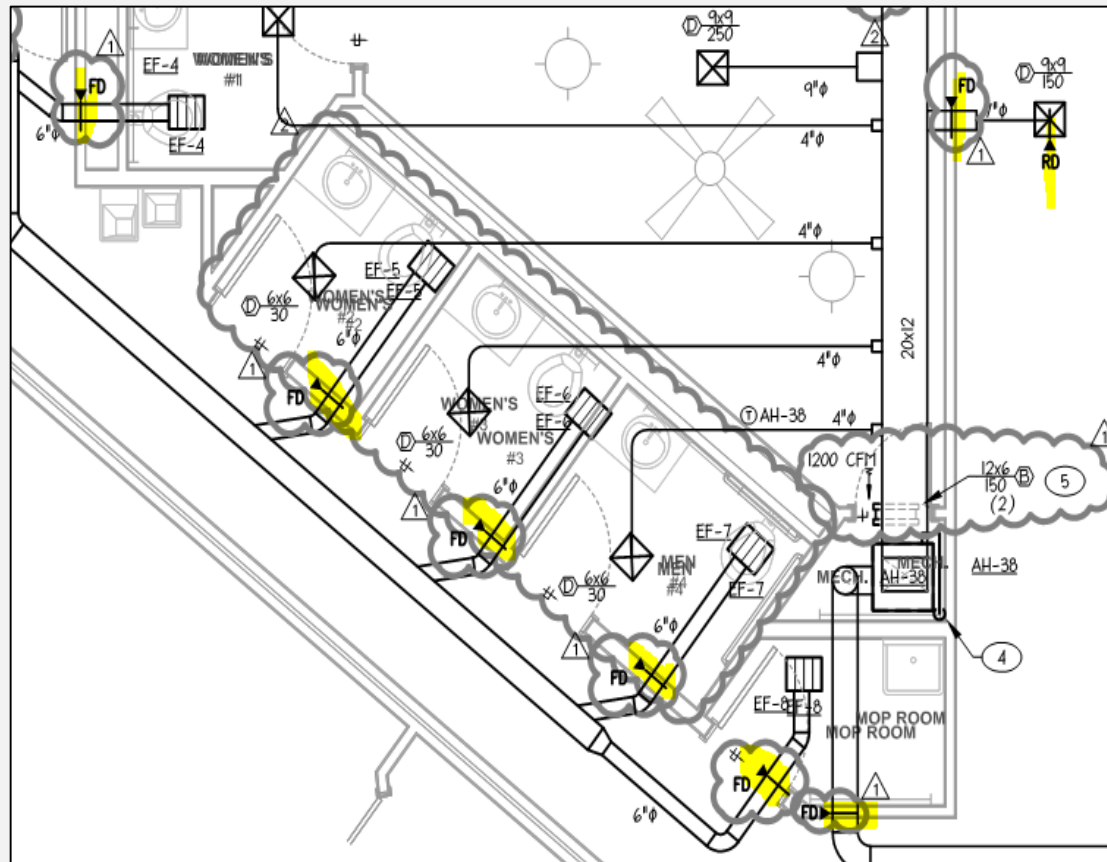


# EXAMPLE OF 2 HOUR FIRE BARRIERS

Separates (compartmentalizes)  
the occupancies and isolates  
the shafts

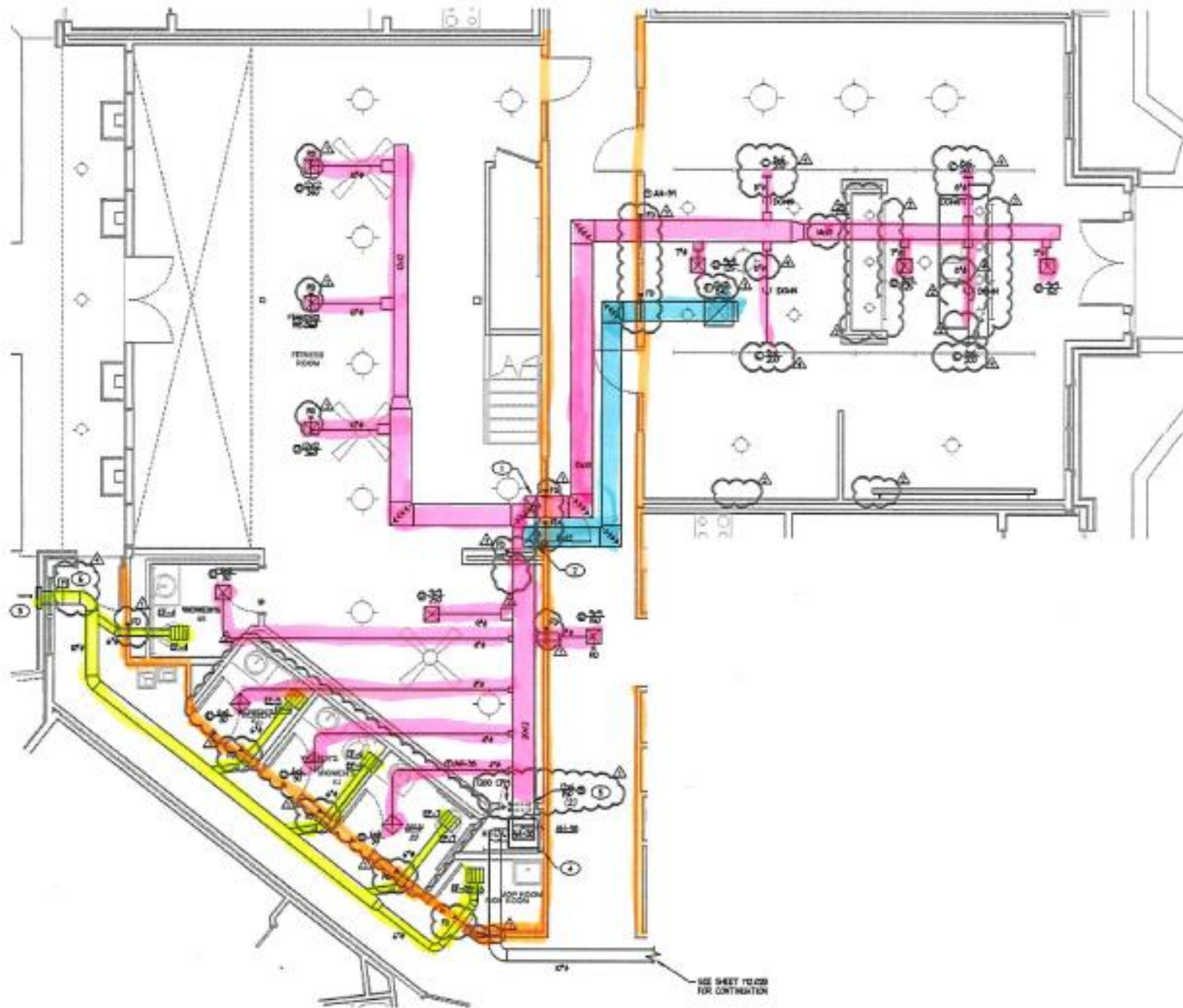
*Note: There should be a smoke  
curtain over the elevator shaft  
opening since it opens directly onto  
the corridor. Also, FW's act as  
separation walls in this case.*





SEE SHEET FOUR  
FOR CONTINUATION





# TAGGED NOTES

1. Duct supply duct up through floor to second level.
2. Duct return duct up through floor to second level.
3. Drainable hall Louver shall have a 1/2" deep metal flush board lower.
4. 7" coordinate drain pipe down to 1/2" drain.
5. Install transfer grilles above door.
6. Without proper weatherstripping, damper shall open when any of turning on and damper shall be closed when all EPS are off.

# GENERAL NOTE

TE TO COORDINATE WITH STRUCTURAL BEFORE INSTALLATION OF DUCT, HE SHALL NOTIFY ARCH OF ANY CONFLICTS

# VENTILATION CALCULATIONS

CALCULATIONS BASED ON THE 200 MERV TABLE 400.3

ALL-20

TYNOS LEVEL 1

- (100 SQFT) x (10 PEOPLE/100 SQFT x 200 CFM/PERSON + 0.5 CFM/SQFT)
- 200 CFM
- 200.0 (10)
- 200 CFM

ALL-20 PROVIDES 200 CFM

ALL-21

GYMNASIUM

- (1000 SQFT) x (10 PEOPLE/100 SQFT x 200 CFM/PERSON + 0.5 CFM/SQFT)
- 200 CFM
- 200.0 (10)
- 200 CFM

ALL-21 PROVIDES 200 CFM

SEE SHEET 10-03 FOR CONTINUATION

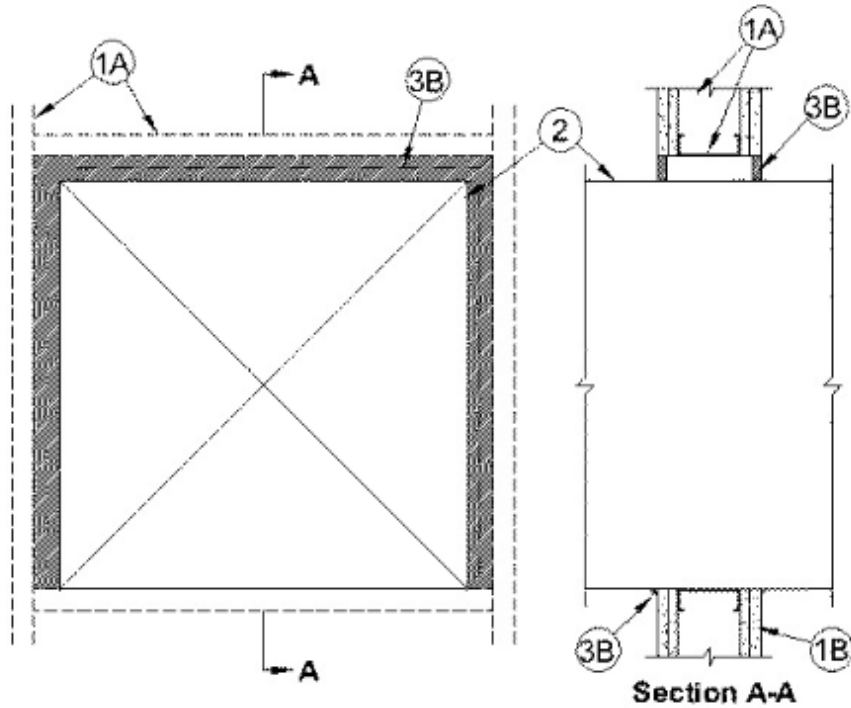
# UL THROUGH PENETRATION DESIGNS

## System No. W-L-7029

### System No. W-L-7029

July 20, 2017

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings — 1 and 2 Hr (See Item 1)	F Ratings — 1 and 2 Hr (See Item 1)
T Rating — 1/4 Hr	FT Rating — 1/4 Hr
	FH Ratings — 1 and 2 Hr (See Item 1)
	FTH Rating — 1/4 Hr



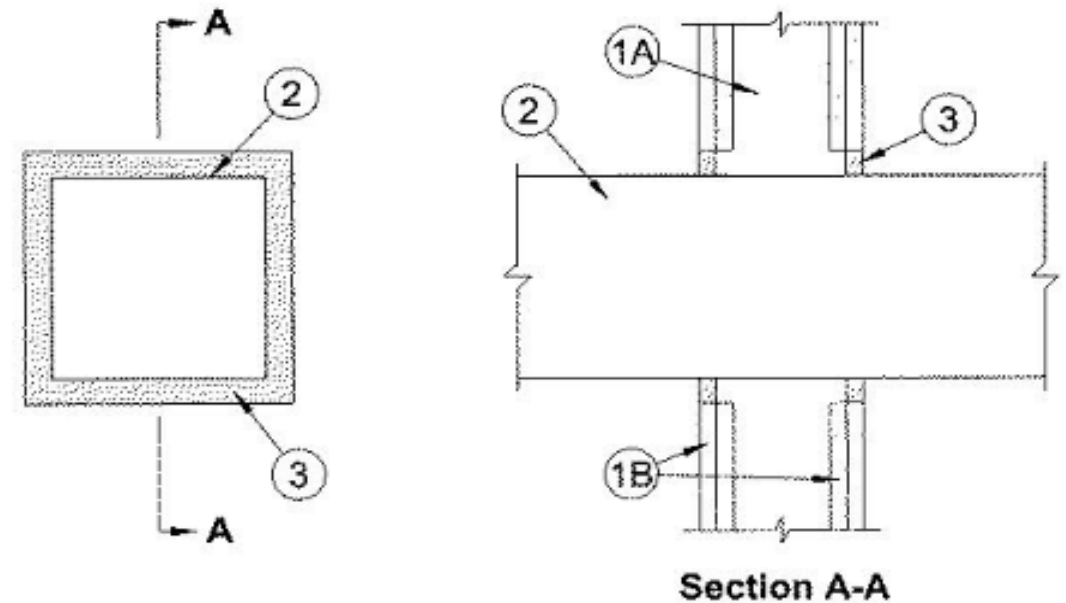
## System No. W-L-7062

### System No. W-L-7062

September 24, 2004

F Ratings — 1 and 2 Hr (See Item 1)

T Rating — 0 Hr





# ONE HOUR GYP WALL TEST

With various penetrations having different firestopping methods

**F RATING.** The time period that the *through-penetration firestop system* limits the spread of fire through the penetration when tested in accordance with ASTM E814 or UL 1479.

**T RATING.** The time period that the *penetration firestop system*, including the penetrating item, limits the maximum temperature rise to **325°F** (163°C) above its initial temperature through the penetration on the nonfire side when tested in accordance with ASTM E814 or UL 1479.

**L RATING.** The air leakage rating of a *through penetration firestop system* or a fire-resistant *joint system* when tested in accordance with UL 1479 or UL 2079, respectively.



# **FIRE PARTITIONS (NCBC 709)**

- Separate Dwelling Units
  - Separate Sleeping Units
  - Tenant Walls in Covered Malls
  - Corridor Walls
  - Elevator Lobby Walls
- Separate Sleeping Units / Dwelling Units / Tenants
  - Form Corridors or Elevator Lobbies
  - Continuous from fnd to roof
  - Rated from 0.5 – 4 hours





Elevator Lobby

Framed from foundation to rated assembly (not continuous to floor or roof deck above) so this is a fire partition, not a fire barrier



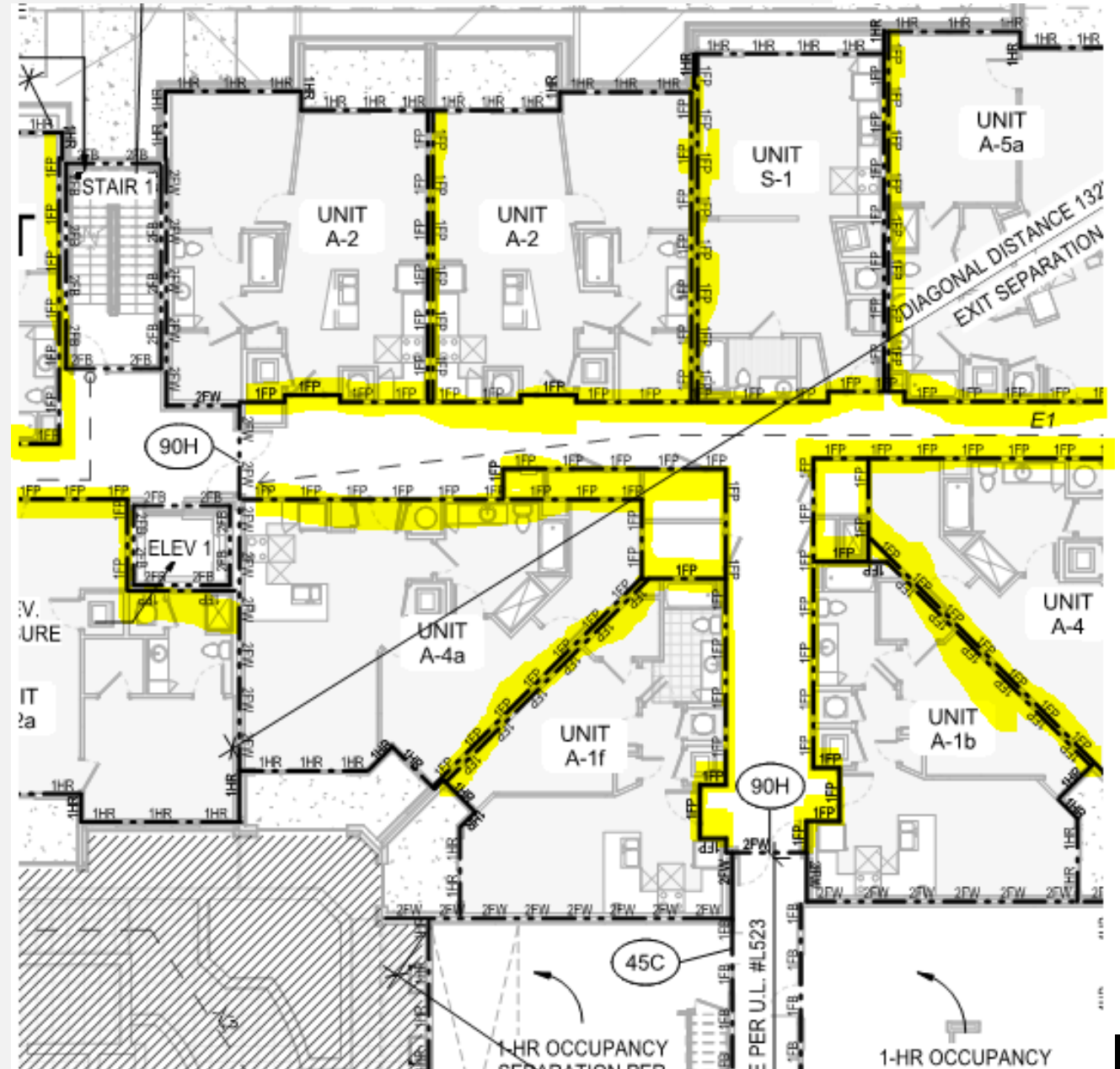


Not  
continuous to  
roof deck.  
Assembly to  
assembly =  
fire partition



# EXAMPLE OF 1 HOUR FIRE PARTITIONS

- Corridor Walls
- Dwelling Unit Separation Walls





# HORIZONTAL ASSEMBLIES (NCBC 712)

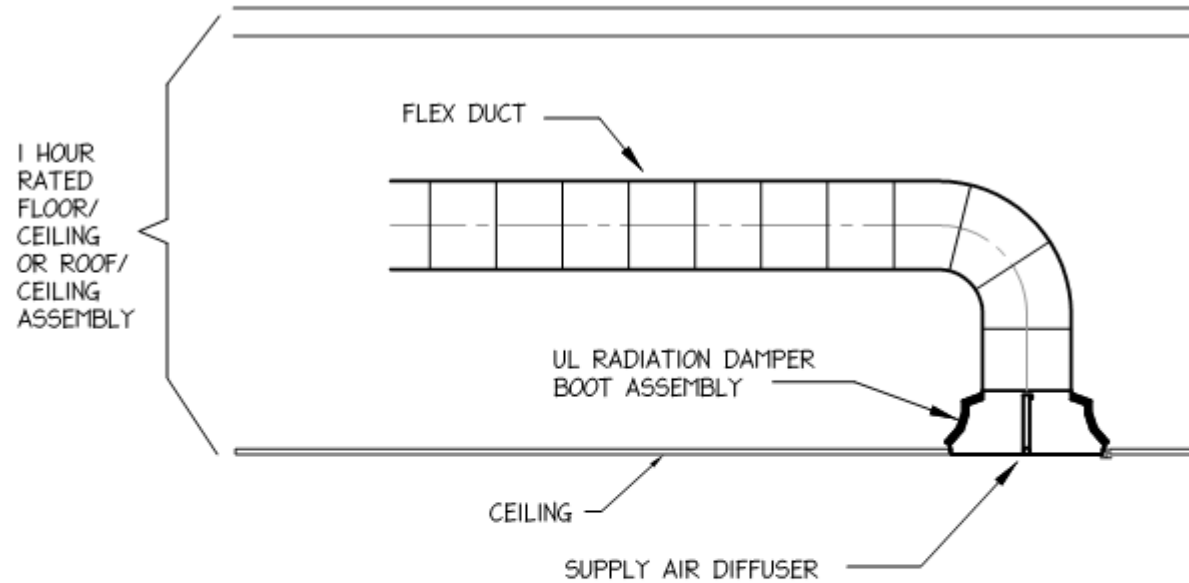
**711.2 Horizontal assemblies.** *Horizontal assemblies* shall comply with Sections 711.2.1 through 711.2.6.

**711.2.1 Materials.** Assemblies shall be of materials permitted by the building type of construction.

**711.2.2 Continuity.** Assemblies shall be continuous without vertical openings, except as permitted by this section and Section 712.

**711.2.3 Supporting construction.** The supporting construction shall be protected to afford the required *fire-resistance rating* of the *horizontal assembly* supported.

- Separate Fire Areas / Occupancies
- Form Egress Components
- Must be supported by construction of same rating
- Rated from 0.5 – 4 hours



**NOTE:**

1. SEE FLOOR PLANS AND SPECIFICATIONS FOR DUCT INSULATION REQUIREMENTS.
2. PROVIDE UL RADIATION DAMPER/BLANKET ASS'Y.

**2 SUPPLY AIR DIFFUSER DETAIL**  
NO SCALE





## From UL L550 Cutsheet

**4. Damper\*** — For use with min 18 in. deep trusses. Max nom 20 in. long by 18 in. wide by 2-1/8 in. high, fabricated from galvanized steel. Plenum box max size nom 21 in. long by 18 in. wide by 16 in. high fabricated from either galvanized steel or Classified Air Duct Materials bearing the UL Classification Marking for Class 0 or Class 1 rigid air duct material. Installed in accordance with the instructions provided by the manufacturer. Max damper openings not to exceed 180 sq in. per 100 sq ft of ceiling area.

**NAILOR INDUSTRIES INC** — Types 0755, 0755A, 0756, 0756D , 0757, 0757D, 0757FP, 0757DFP, 0758, 0759, 0760, 0761, 0762, CRD5, CRD5D, CRD6, CRD6D, CRD6FP, CRD6DFP



# UL DESIGN CUTSHEET

Assembly must be put in **exactly** as tested and as outlined in the cutsheet. Penetration details must match, also.

## Design No. L550

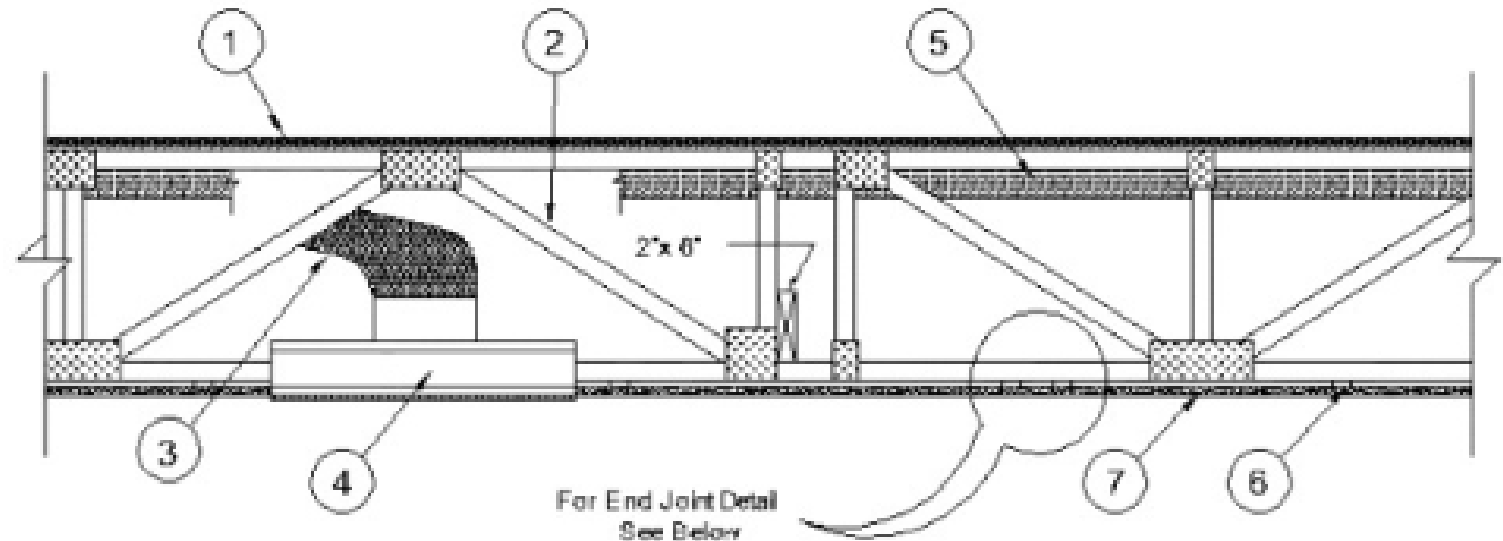
October 08, 2018

Unrestrained Assembly Rating — 1 Hr.

Finish Rating — 23 Min (See Items 5 or 5A and 7), 20 Min. (See Items 6E and 7A)

This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide [BXUV](#) or [BXUV7](#)

\* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.







# Product Fair – Save the Date

*January 7, 2020 8 a.m. – 12:00 p.m.*

*4<sup>th</sup> floor Pine / Frasier – Fir training rooms*

*2145 Suttle Ave., Charlotte, NC 28208*

# OPEN DISCUSSION





**THANK YOU**